

EXHIBIT 2- PRODUCT DATA SHEETS

V2 T-Biscuits

Custom carbon/glass fiber reinforced plastic laminates

Product Description

CFRP Tee Joint Biscuits are custom carbon/glass fiber reinforced plastic laminates designed to repair failed flange-to-flange shear connectors of pre-cast double Tee beams. A specially engineered tri-axial carbon fabric is used provide high strength, while a proprietary textured glass fabric is bonded on the exterior face to provide additional toughness as well as a rough bonding surface. The constituent resin matrix is a toughened vinyl ester with proven ability to provide strength along with superior chemical resistance, especially to salt and gasoline. Using a proprietary aerospace composite manufacturing technique, the fabric and resin are combined to form a finished composite laminate. This laminate is then cut to shape using ultra high-pressure water jet cutting equipment.

Advantages

- Easy and fast installation
- Minimal disruption to operations
- Superior strength and toughness
- Chemical resistant

Typical Biscuit Properties Along X/Y Axis

Thickness in. (cm)	Tensile Capacity lbs. (kilo)	Compressive Capacity lbs. (kilo)	Shear Capacity lbs. (kilo)
0.17 (0.43)	50,406 (25,585)	50,306 (22,818)	10,706 (4,856)

Laminate Properties

Tensile Strength (along X/Y axis)	110,630 psi (762 MPa)
Compressive Strength (along X/Y axis)	98,640 psi (680 MPa)
Compress Strength (through thickness)	9,200 psi (63 MPa)
In Plane Shear Strength (along the Z axis or through thickness)	20,992 psi (145 MPa)
Inter Laminar Shear (along X/Y axis)	2,050 psi (14 Mpa)
Bond Strength to Concrete (using V2 Biscuit Bond Epoxy)	2,760 psi (19 MPa)

Large Scale In Situ Testing

Vertical Shear (5k psi concrete)	8,000 lbs.
Horizontal Shear (5k psi concrete)	17,200 lbs.
Tension (Pull Out) (8k psi concrete)	16,500 lbs.



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V2 T-Biscuit

Installation With V2 Biscuit Bond Paste

1. Make a cut .25" wide by 18" long at a 90° angle across the seam. The depth of the cut should be 1/4" from the bottom of the flange of the double T. Typically, the cut is approximately 3.5" deep.
2. If the slots were dry cut using compressed air with a minimum of 100 psi, clean out the slots to remove dirt and dust. If the slots were wet cut, pressure wash the slots to remove slurry or dirt. Allow 24 hours to dry. Mask off the top of the groove with tape (for a cleaner look).
3. Mix the Biscuit Bond Paste according manufacturer's instructions and fill the groove with a liberal amount of adhesive and work it in with a trowel or putty knife.
4. Apply biscuit bond to both sides of the T- Biscuit and place into the groove working all of the air out of the groove with a putty knife. Allow epoxy to gel. Once epoxy has set, remove masking tape.

Mixing Considerations for Paste

Measure exactly 1 part "A" to 1 part "B" by volume into clean pail or onto a palette. Mix epoxy using hand methods to achieve a smooth consistency and uniform color.

NOTE: Large batches of epoxy will set up much faster than small batches. Only mix the amount of material that can be used within the pot life.

Storage

T-Biscuits and epoxy should be stored in a dry environment at a temperature between 40° to 90°F (4° to 32°C). Ideal temperature range is 65° to 75°F (18° to 24°C). Temperatures below 60°F (16°C) will cause epoxy to thicken, making it difficult to properly blend the components. Under proper conditions, the shelf life of epoxy is twelve (12) months in unopened, damage-free containers. Protect from moisture. Do not allow product to freeze.

Clean Up & First Aid

Clean equipment immediately after use with MEK or Acetone. Clean skin with soap and water. Wash contaminated clothing before re-use. See MSDS for more information.

Caution

Paste "A" material contains epoxy resins and may cause skin irritation. Paste "B" material contains amines and may cause severe burns on skin.

Warranty

V2 Structural Systems warrants its products to be free from manufacturing defect and ensures those products meet the published characteristics when tested in accordance with ASTM and V2 standards. No other warranties by V2 are expressed or implied, including no warranty of merchantability or fitness for a particular purpose. V2 will not be liable for damages of any sort resulting from any claimed breach of warranty. V2's liability under this warranty is limited to replacement of material or refund of the sales price of the material. There are no warranties on any product that has exceeded the "shelf life" or "expiration date" printed on the package label.



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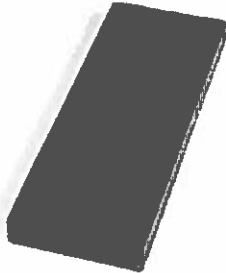
Rev.0815



EMCRETE

Non-Hazardous High-Impact Elastomeric Concrete Material

TECH DATA



Product Description

EMCRETE is a flexible, durable, high-impact elastomeric concrete material. It is a bio-based, non-hazardous, extremely-low VOC product primarily used as a component of an expansion joint assembly either to fill blockouts on each side of an expansion joint gap, to repair a damaged expansion joint gap edge, as an impact-absorbing backfill nosing, or as a fast-curing patching material for potholes, or spalls on concrete roadways, parking surfaces, bridges, runways, etc.

EMCRETE is comprised of a two-component polyurethane resin mixed with sand and chopped fiberglass aggregates. The sand imparts compressive strength. The fiber provides cross-linked reinforcement while, in combination with the sand, adds body to the polyurethane resin.

Typical Uses

Some of the typical uses of EMCRETE within EMSEAL expansion joint systems are:

Repair

To repair spalled gap edges in high load-bearing applications. The spalled concrete must be cut out using industry standards for concrete repair. Once the gap edge has been cut and cleaned, the self-leveling EMCRETE can be poured to form a horizontal elastomeric gap edge that is more resistant to spalling and gap edge deterioration.

Elastomeric Concrete

To act as an elastomeric concrete where the possibility of spalling or cracking is a concern for standard concrete or where existing spalls or potholes in concrete roadways, runways, bridges etc. is required.

Leveling and Dampening

As a leveling bed and sound dampening support of the coverplates of EMSEAL SJS Seismic Joint Systems systems. The SJS family of products from EMSEAL are coverplate systems secured to a precompressed foam and spline assembly. The coverplates ride on the deck surface. It is typical to form, cut or grind a shallow blockout on each side of the joint gap and fill this with EMCRETE. This provides a surface that can be grinded to ensure that the coverplates do not rock and are fully supported over their entire contact area. Ensuring the plates are properly supported while absorbing the shocks of vehicular impact both contribute in attenuating sound.

Impact Absorbing

As an impact-absorbing header material behind the rails of EMSEAL FP systems. MIGUTAN, DSM-FP, and SJS-FP are systems designed for installation in split-slab conditions. These systems install onto the structural slab and feature watertight integration with the split-slab waterproofing membrane through integral side flashing sheets supplied with the expansion joint system.

Installation Summary

The following is a summary. Installation must follow the complete Installation Instructions shipped with the material and available at www.emseal.com.

Substrates must be thoroughly dry and the temperature must be at least 45°F (8°C) and rising to install EMCRETE. The bonding surface should be in sound and good condition before prepping. The entire

bonding surface is to be wire brushed and fully cleaned leaving no contaminants such as dirt, dust, oils, or other residue on any surface. Next, the area where EMCRETE will be poured should be fully prepped and formed. The substrate is then primed with the (non-HAP) EMPRIME primer that is included with units of EMCRETE and allowed to dry for 30 minutes. The EMCRETE is then mixed in accordance with the complete Installation Instructions in the pre-measured amounts provided. The EMCRETE is then poured into the forms where it will self-level and cure exothermically. It can be trowelled to ensure a consistent surface. The working time of EMCRETE is less than 10-minutes after mixing. Working time, and cure time, is longer in cool weather and shorter in hot weather. EMCRETE reaches a hardness which allows for pedestrian or vehicular traffic within 1-hour after application under standard conditions.

Supply

Packaging

EMCRETE Elastomeric Concrete is sold by the unit. Each unit is comprised of a large container which holds of pre-measured containers of the liquids (Parts A & B, and EMPRIME) as well as Sand and Fiber.



Yield*

1 Unit: 9,766 cubic cm (596 cubic inches)

*account for a 5% waste factor

Performance Properties

IMPORTANT: When comparing elastomeric concrete materials it is vital to compare the data of the fully mixed material. Resin-only data is irrelevant as the material is not used without aggregate. Aggregate increases compressive strength at the expense of flexibility and brittleness. Heavy aggregate loading, while it reduces cost, is detrimental to performance of the material as an impact-absorbing nosing and patching material. The following are properties of EMCRETE (resins, sand, and chopped fiberglass) at as-supplied ratios.

Properties of Mixed EMCRETE Resin and Aggregate

Physical Property	Value	Test Method
Adhesion (primed concrete)	413 psi	ASTM D7234
Adhesion (primed steel)	492 psi	ASTM D7234
Adhesion (primed galvanized steel)	417 psi	ASTM D7234
Tensile Strength	651 psi	ASTM D412
Elongation	20%	ASTM D412
Compressive Strength	1500 psi	ASTM D695
Compressive Modulus	11.27 ksi	ASTM D695
Hardness (Shore D)	57	ASTM D2240
Hardness (Shore A)	98	ASTM D2240
Viscosity @ 50 rpm (mixed resin)	1560 cP	ASTM D4847
Impact Testing —Ball Drop**	No Failure at 69°F (20°C)	ASTM D3029-95
	No Failure at -4°F (-20°C)	ASTM D3029-95

**1 pound steel ball dropped onto 3/8-inch thick (6mm) x 2 3/4-inch diameter (70mm) disk from 17 feet (5.3m)

EMCRETE Applications

Fig. 1: EMCRETE Used as Expansion Joint Nosing Material

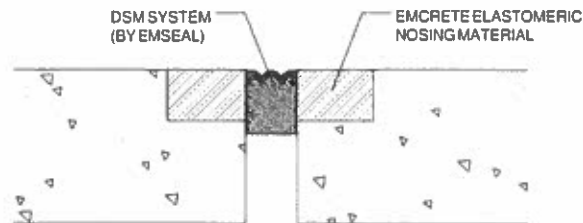


Fig. 2: EMCRETE Used as Concrete Patching Material

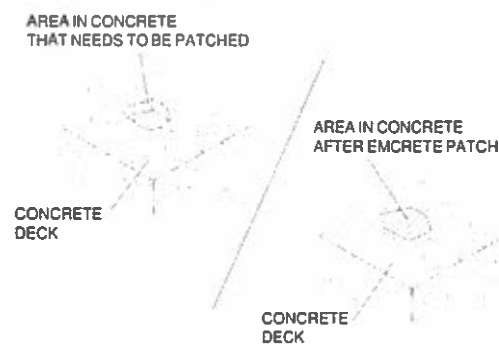
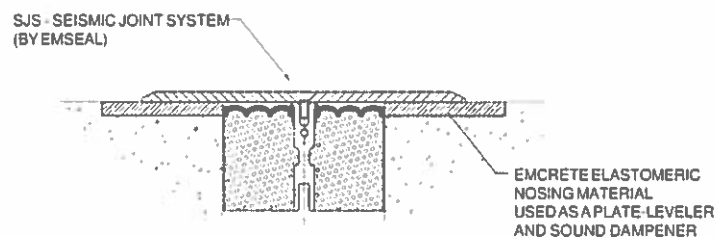


Fig. 3: EMCRETE Used with SJS System as a Plate-Leveler and Sound Dampener



Sika® Armatec® 110 EpoCem

Bonding Agent and Reinforcement Protection

Description	Sika® Armatec® 110 EpoCem is a 3-component, solvent-free, moisture-tolerant, epoxy-modified, cementitious product specifically formulated as a bonding agent and anti-corrosion coating.
Where to Use	<ul style="list-style-type: none"> ■ As an anti-corrosion coating for reinforcing steel in concrete restoration. ■ As added protection to reinforcing steel in areas of thin concrete cover. ■ As a bonding agent for repairs to concrete and steel. ■ As a bonding agent for placing fresh, plastic concrete to existing hardened concrete.
Advantages	<ul style="list-style-type: none"> ■ Excellent adhesion to concrete and steel. ■ Acts as an effective barrier against penetration of water and chlorides. ■ Long open time - up to 16 hours. ■ Not a vapor barrier. ■ Can be used exterior on-grade. ■ Contains corrosion inhibitors. ■ Excellent bonding bridge for cement or epoxy based repair mortars. ■ High strength, unaffected by moisture when cured. ■ Spray, brush or roller application. ■ Non-flammable, solvent free.
Coverage	Bonding agent: minimum (theoretical) on smooth, even substrate 80 ft. ² /gal. (=20 mils thickness). Coverage will vary depending on substrate profile and porosity. Reinforcement Protection: 40 ft. ² /gal. (=20 mils thickness) (2 coat application).
Packaging	3.5 gal. unit. (47.6 fl. oz. Comp. A + 122.1 fl. oz. Comp. B + 46.82 lb. Comp. C) Comp. A + B in carton, Comp. C in multi-wall bag. 1.65 gal. unit. (22.7 fl. oz. A + 57.6 fl. oz. B + 4 bags @ 5.5 lb.) Factory-proportioned units in a pail.

Typical Data (Material and curing conditions @ 73°F and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	1 year in original, unopened packaging.		
Storage	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F (18°-24°C) before using. If components A and B are frozen, discard. Protect Component C from humidity.		
Color	Concrete gray		
Density (Mixed)	125 lb./ft. ³ (2.0 kg.)		
Pot Life	Approximately 90 minutes		
Compressive Strength (ASTM C-109)	3 days	4500 psi	(31.0 MPa)
	7 days	6500 psi	(44.8 MPa)
	28 days	8500 psi	(58.6 MPa)
Flexural Strength (ASTM C-348)	28 days	1250 psi	(8.6 MPa)
Splitting Tensile Strength (ASTM C-496)	28 days	600 psi	(4.1 MPa)
Important Data for Sika Armatec 110 as a Corrosion Protective Coating			
Water	Water Permeability at 10 bar (145 psi)	8.92 x 10 ⁻¹⁵ ft./sec.	
	Control	7.32 x 10 ⁻¹⁰ ft./sec.	
	Water vapor diffusion coefficient μ H ₂ O	110	
Carbon Dioxide	Carbon dioxide diffusion coefficient μ CO ₂	14000	

TEST DATA: Time-to-Corrosion Study

- Sika® Armatec® 110 more than tripled the time to corrosion
- Reduced corrosion rate by over 40%



PRIOR TO EACH USE OF ANY SIKA PRODUCT, THE USER MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://USA.SIKA.COM/) OR BY CALLING SIKA'S TECHNICAL SERVICE DEPARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.

Important Data for Sika® Armatec® 110 as a Bonding Agent

Bond Strength (ASTM C882)		14 days moist cure, plastic concrete to hardened concrete:	
Wet on Wet	2800 psi	(19.3 MPa)	
24 hr. Open Time	2600 psi	(17.9 MPa)	
Bond of Steel Reinforcement to Concrete (Pullout Test):			
Sika® Armatec® 110 Coated	625 psi	(4.3 MPa)	
Epoxy Coated	508 psi	(3.5 MPa)	
Plain Reinforcement	573 psi	(3.95 MPa)	

How to Use

Surface Preparation	<p>Cementitious substrates: Should be cleaned and prepared to achieve a laitance and contaminant-free surface prepared in accordance with the requirements specified by the overlay or repair material by blast cleaning or equivalent mechanical means. Substrate must be saturated surface dry (SSD) with no standing water.</p> <p>Steel: Should be cleaned and prepared thoroughly by blast cleaning.</p>								
Mixing	Shake contents of both Component 'A' and Component 'B'. Empty entire contents of both Component 'A' and Component 'B' into a clean, dry mixing pail. Mix thoroughly for 30 seconds with a Sika paddle on a low speed (400-600 rpm) drill. Slowly add the entire contents of Component 'C' while continuing to mix for 3 minutes until blend is uniform and free of lumps. Mix only that quantity that can be applied within its pot life.								
Application	<p>As a bonding agent - Apply by stiff-bristle brush or broom. Spray apply with Goldblatt Pattern Pistol or equal equipment. For best results, work the bonding slurry well into the substrate to ensure complete coverage of all surface irregularities. Apply the freshly mixed patching mortar or concrete wet on wet, or up to the maximum recommended open time, onto the bonding slurry.</p> <p>Maximum recommended open time between application of Armatec® 110 and patching mortar or concrete:</p> <table> <tr> <td>80°-95°F (26°-35°C)</td><td>6 hours</td></tr> <tr> <td>65°-79°F (18°-26°C)</td><td>12 hours</td></tr> <tr> <td>50°-64°F (10°-17°C)</td><td>16 hours</td></tr> <tr> <td>40°-49°F (4°-9°C)</td><td>wet-on-wet</td></tr> </table> <p>For corrosion protection only - Apply by stiff-bristle brush or spray at 80 ft.²/gal. (20 mils). Take special care to properly coat the underside of the totally exposed steel. Allow coating to dry 2-3 hours at 73°F, then apply a second coat at the same coverage. Allow to dry again before the repair mortar or concrete is applied. Pour or place repair within 7 days.</p>	80°-95°F (26°-35°C)	6 hours	65°-79°F (18°-26°C)	12 hours	50°-64°F (10°-17°C)	16 hours	40°-49°F (4°-9°C)	wet-on-wet
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Limitations	<ul style="list-style-type: none"> ■ Substrate and ambient temperature: Minimum 40°F (5°C). ■ Maximum 95°F (35°C). ■ Minimum thickness: As a bonding agent 20 mils. ■ For reinforcement protection 40 mils. ■ (2 coats, 20 mils each). ■ Not recommended for use with expansive grouts. ■ Use of semi-dry mortars onto Sika® Armatec® 110 EpoCem must be applied "wet on wet". ■ When used in overhead applications with hand placed patching mortars, use "wet on wet" for maximum mortar built thickness. ■ Substrate profile as specified by the overlay or repair material is still required. ■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® Hi-Mod 32. 								

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KEEP CONTAINER TIGHTLY CLOSED. KEEP OUT OF REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. FOR INDUSTRIAL USE ONLY. FOR PROFESSIONAL USE ONLY.

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. Read the current actual Safety Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 703-627-3887.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Safety Data Sheet which are available online at <http://usa.sika.com/> or by calling Sika's Technical Service Department at 800-933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS. SALE OF SIKA PRODUCTS ARE SUBJECT SIKA'S TERMS AND CONDITIONS OF SALE AVAILABLE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING 201-933-8800.

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Sikaflex®-2c NS

Two-component, non-sag, polyurethane elastomeric sealant

Description	Sikaflex-2c NS is a 2-component, premium-grade, polyurethane-based, elastomeric sealant. It is principally a chemical cure in a <u>non-sag</u> consistency. Meets ASTM C-920, Type M, Grade NS, Class 25, use T, NT, M, G, A, O, I and Federal Specification TT-S-00227E, Type II, Class A. Tested in accordance with ASTM C-1382 for use in EIFS systems.
Where to use	<ul style="list-style-type: none"> Intended for use in all properly designed working joints with a minimum depth of 1/4 inch. Ideal for vertical and horizontal applications. Placeable at temperatures as low as 40°F. Adheres to most substrates commonly found in construction. An effective sealant for use in Exterior Insulation Finish Systems (EIFS). Submerged environments, such as canal and reservoir joints.
Advantages	<ul style="list-style-type: none"> Capable of ±50% joint movement. Chemical cure allows the sealant to be placed in joints exceeding 1/2 in. in depth. High elasticity with a tough, durable, flexible consistency. Exceptional cut and tear resistance. Exceptional adhesion to most substrates without priming. Available in 35 architectural colors. Color uniformity assured via Color-pak system. Available in pre-pigmented Limestone Gray (no Color-pak needed). Non-sag even in wide joints. Easy to mix. Paintable with water-, oil-, and rubber-base paints. Jet fuel resistant.
Coverage	1 gal. yields 231 cu. in. or 154 lin. ft. of a 1/2 in. x 1/4 in. joint.
Packaging	1.5 gal. unit. 3 gal. units. Color-pak is purchased separately. Limestone Gray color available pre-pigmented.

Typical Data (Material and curing conditions 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf life	One year in original, unopened containers.	
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.	
Colors	A wide range of architectural colors are available. Special colors available on request.	
Application Temperature	40° to 100°F, ambient and substrate temperatures. Sealant should be installed when joint is at mid-range of its anticipated movement.	
Service Range	-40° to 170°F (-40°-75°C).	
Curing Rate (ASTM C-679)		
Tack-Free Time	6-8 hrs.	
Final Cure	3 days	
Application Life	3-4 hrs.	
Tear Strength	ASTM D-624	45 lb./in.
Shore A Hardness	ASTM D-2240	25 ± 5
Tensile Properties (ASTM D-412)		
Tensile Strength at Break	95 psi	
Tensile Elongation	500%	
100% Modulus	70 psi	
Adhesion in Peel (Fed Spec. TT-S-00227E)		
Substrate	Peel Strength	% Adhesion Loss
Concrete	25 lb.	Zero
Weathering Resistance	Excellent	
Chemical Resistance	Good resistance to water, diluted acids, diluted alkalines, and residential sewage. Consult Technical Service for specific data.	

How to Use

Surface Preparation All joint-wall surfaces must be clean, sound, and frost-free. Joint walls must be free of oils, grease, curing compound residues, and any other foreign matter that might prevent bond. Ideally this should be accomplished by mechanical means. Bond breaker tape or backer rod must be used in bottom of joint to prevent bond.

Priming	<p>Priming is typically not necessary. Most substrates only require priming if sealant will be subjected to water immersion after cure. Testing should be done, however, on questionable substrates, to determine if priming is needed.</p> <p>Consult Technical Service or Sikaflex Primer Technical Data Sheet for additional information on priming.</p> <p>Note: Most Exterior Insulation Finish Systems (EIFS) manufacturers recommend the use of a primer. When EIFS manufacturer specifies a primer or if on-site bond testing indicates a primer is necessary, Sikaflex 429 primer is recommended. On-site adhesion testing is recommended with final system prior to the start of a job.</p>
Mixing	<p>Pour entire contents of Component 'B' into pail of Component 'A'. Add entire contents of Color-pak into pail and mix with a low-speed drill (400-600 rpm) and Sikaflex paddle.* Mix for 3-5 minutes to achieve a uniform color and consistency. Scrape down sides of pail periodically. Avoid entrapment of air during mixing.</p> <p>When mixing in cold weather (<50°F), do not force the mixing paddle to the bottom of the pail. After adding Component 'B' and Color-pak into Component 'A', mix the top 1/2 to 3/4 of the pail during the first minute of mixing. After scraping down the sides of the pail, mix again for another minute. The paddle should reach the bottom of the pail between the first and second minute of mixing. Scrape down the sides of the pail a second time and then mix for an additional 2-3 minutes until the sealant is well blended.</p> <p>Color-pak must be used with tint base. For pre-pigmented Limestone base, just mix with low speed drill and Sikaflex paddle (no Color-pak needed).</p>
Application	<p>Recommended application temperatures 40°-100°F. Pre-conditioning units to approximately 70°F is necessary when working at extremes. Move pre-conditioned units to work areas just prior to application.</p> <p>Apply sealant only to clean, sound, dry, and frost-free substrates. Sikaflex-2c should be applied into joints when joint slot is at mid-point of its designed expansion and contraction.</p> <p>To place, load directly into bulk gun or use a follower plate loading system. Place nozzle of gun into bottom of joint and fill entire joint. Keeping the nozzle deep in the sealant, continue with a steady flow of sealant preceding nozzle to avoid air entrapment. Also, avoid overlapping of sealant since this also entraps air. Joint dimension should allow for 1/4 inch minimum and 1/2 inch maximum thickness for sealant. Proper design is 2:1 width to depth ratio. Tool sealant to ensure full contact with joint walls and remove air entrapment.</p>
Limitations	<ul style="list-style-type: none"> ■ The ultimate performance of Sikaflex-2c NS depends on good joint design and proper application. ■ Minimum depth in working joint is 1/4 in. ■ Maximum expansion and contraction should not exceed 50% of average joint width. ■ Do not cure in the presence of curing silicones. ■ Avoid contact with alcohol and other solvent cleaners during cure. ■ Allow 3-day cure before subjecting sealant to total water immersion. ■ Avoid exposure to high levels of chlorine. (Maximum level is 5 ppm). ■ Do not apply when moisture vapor transmission exists since this can cause bubbling within the sealant. ■ Avoid over-mixing sealant. ■ Light color shades tend to yellow over time when exposed to ultraviolet rays. ■ Light colors can yellow if exposed to direct gas fired heating elements. ■ When overcoating, an on-site test is recommended to determine actual compatibility. ■ The depth of sealant in horizontal joints subject to traffic is 1/2 inch. ■ In horizontal joints exposed to vehicular or foot traffic, "TG" additive is recommended. See Sikaflex-2c NS TG data sheet for specific details.
Caution	<p>Component 'A': Irritant - Avoid contact. Product is a skin, respiratory and eye irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded. Use with adequate ventilation.</p> <p>Component 'B': Combustible; Sensitizer; Irritant - Contains Xylene. Keep away from heat, sparks and open flame. Use with adequate ventilation. Product is a respiratory and skin sensitizer. Avoid contact. Product is an eye, skin, and respiratory irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded.</p>
First Aid	<p>Eyes - Rinse eyes thoroughly for fifteen minutes. Contact physician. Skin - Wash affected area thoroughly with soap and water. Remove contaminated clothing. If irritation persists contact physician. Inhalation - Remove to fresh air. If breathing stops, institute artificial respiration. Contact physician. Ingestion - Dilute with water. Contact physician.</p>
Clean Up	<p>Uncured material can be removed with approved solvent. Cured material can only be removed mechanically. For spillage, collect, absorb, and dispose of in accordance with current, applicable local, state, and federal regulations.</p>



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Sikaflex®-2c SL

Two-component, self-leveling, polyurethane elastomeric sealant

Description	Sikaflex-2c SL is a 2-component, premium-grade, polyurethane-based, elastomeric sealant. It is principally a chemical cure in a self-leveling consistency. Meets ASTM C-920, Type M, Grade P, Class 25, use T, NT, M, G, A, O, I and Federal Specification TT-S-00227E, Type 1, Class A.
Where to use	<ul style="list-style-type: none"> ■ Intended for use in all properly designed working joints with a minimum depth of 1/4 inch. ■ Ideal for horizontal applications. ■ Placeable at temperatures as low as 40°F. ■ Adheres to most substrates commonly found in construction. ■ Submerged conditions, such as canal and reservoir joints.
Advantages	<ul style="list-style-type: none"> ■ True self-leveling properties. ■ Capable of ±50% joint movement. ■ Chemical cure allows the sealant to be placed in non-moving joints exceeding 1/2 in. in depth. ■ High elasticity with a tough, durable, flexible consistency. ■ Exceptional cut and tear resistance. ■ Exceptional adhesion to most substrates without priming. ■ Available in 35 architectural colors. ■ Color uniformity assured via Color-pak system. ■ Available in pre-pigmented Limestone Gray (no Color-pak needed). ■ Self-leveling consistency, easy to apply in horizontal joints. ■ Easy to mix. ■ Paintable with water-, oil-, and rubber-base paints. ■ Jet fuel resistant. ■ No color-pak needed in pre-pigmented Limestone.
Coverage	1 gal. yields 231 cu. in. or 154 lin. ft. of a 1/2 in. X 1/4 in. joint.
Packaging	1.5 gal. unit. 3 gal. units. Color-pak is purchased separately. Limestone Gray color available pre-pigmented.

Typical Data (Material and curing conditions 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf life	One year in original, unopened containers.	
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.	
Colors	A wide range of architectural colors are available. Special colors available on request.	
Application Temperature	40° to 100°F, ambient and substrate temperatures. Sealant should be installed when joint is at mid-range of its anticipated movement.	
Service Range	-40° to 170°F (-40°-75°C).	
Curing Rate (ASTM C-679)		
	Tack-free Time	6-8 hrs.
	Final Cure	3 days
Application Life	TT-S-00227E	4 hrs.
Tear Strength	ASTM D-624	100 lb./in.
Shore A Hardness	ASTM D-2240	40 ± 5
Tensile Properties (ASTM D412)		
	Tensile Strength at Break	175 psi
	Tensile Elongation	650%
	100% Modulus	100 psi
Adhesion in Peel (Fed Spec. TT-S-00227E)		
	Substrate	Peel Strength % Adhesion Loss
	Concrete	30 lb. Zero
Weathering Resistance	Excellent	
Chemical Resistance	Good resistance to water, diluted acids, diluted alkalines, and residential sewage. Consult Technical Service for specific data.	

How to Use

Surface Preparation	All joint-wall surfaces must be clean, sound, and frost-free. Joint walls must be free of oils, grease, curing compound residues, and any other foreign matter that might prevent bond. Ideally this should be accomplished by mechanical means. A roughened surface will also enhance bond. Bond breaker tape or backer rod must be used in bottom of joint to prevent bond.
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Priming	<p>Priming is typically not necessary. Most substrates only require priming if sealant will be subjected to water immersion after cure. Testing should be done, however, on questionable substrates, to determine if priming is needed.</p> <p>Consult Technical Service or Sikaflex Primer Technical Data Sheet for additional information on priming.</p>	Linear Feet of Sealant per Gallon			
		Depth			
		Inches	¼	½	
		¼	308.0		
		½	154.0	77.0	
		¾	102.7	51.3	
		1	77.0	38.5	
Mixing	<p>Pour entire contents of Component 'B' into pail of Component 'A'. Add entire contents of Color-pak into pail and mix with a low-speed drill (400-600 rpm) and Sikaflex paddle. * Mix for 3-5 minutes to achieve a uniform color and consistency. Scrape down sides of pail periodically. Avoid entrapment of air during mixing.</p> <p>Color-pak must be used with tint base. Note: When mixing 3 gal. unit, two containers of Component B and two color-paks must be used.</p> <p>*For pre-pigmented Limestone base, just mix with low speed drill and Sikaflex paddle (no Color-pak needed).</p>	Width	1 ½	61.6	30.8
			1 ¾	51.3	25.7
Application	<p>Recommended application temperatures 40°-100°F. Pre-conditioning units to approximately 70°F is necessary when working at extremes. Move pre-conditioned units to work areas just prior to application.</p> <p>Apply sealant only to clean, sound, dry, and frost-free substrates. Sikaflex-2c should be applied into joints when joint slot is at mid-point of its designed expansion and contraction.</p> <p>To place, pour or extrude the SL grade in one direction and allow it to flow and level as necessary. If extruding, load mixed sealant directly into bulk gun or use follower plate loading system. Place nozzle of gun into bottom of joint and fill entire joint. Keeping the nozzle deep in the sealant, continue with a steady flow of sealant preceding nozzle to avoid air entrapment. Also, avoid overlapping of sealant since this also entraps air. Tool as necessary. Joint dimension should allow for 1/4 inch minimum and 1/2 inch maximum thickness for sealant. Proper design is 2:1 width to depth ratio.</p>				
Limitations	<ul style="list-style-type: none">■ The ultimate performance of Sikaflex-2c, depends on good joint design and proper application.■ Minimum depth in working joint is 1/4 in.■ Maximum expansion and contraction should not exceed 50% of average joint width.■ Do not cure in the presence of curing silicones.■ Avoid contact with alcohol and other solvent cleaners during cure.■ Allow 3 day cure before subjecting sealant to total water immersion.■ Avoid exposure to high levels of chlorine. (Maximum level is 5 ppm).■ Do not apply when moisture vapor transmission exists since this can cause bubbling within the sealant.■ Avoid over-mixing sealant.■ White color tends to yellow slightly when exposed to ultraviolet rays.■ Light colors can yellow if exposed to direct gas fired heating elements.■ When overcoating: an on-site test is recommended to determine actual compatibility.■ The minimum depth of sealant in horizontal joints subject to traffic is 1/2 inch.■ Do not tool with detergent or soap solution.				
Caution	<p>Component 'A': Irritant - Avoid contact. Product is a skin, respiratory and eye irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded. Use with adequate ventilation.</p> <p>Component 'B': Combustible; Sensitizer; Irritant - Contains Xylene. Keep away from heat, sparks and open flame. Use with adequate ventilation. Product is a respiratory and skin sensitizer. Avoid contact. Product is an eye, skin, and respiratory irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded.</p>				
First Aid	<p>In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes; contact physician. For respiratory problems, remove to fresh air. Wash clothing before re-use. Discard contaminated shoes.</p>				
Clean Up	<p>Uncured material can be removed with approved solvent. Cured material can only be removed mechanically. For spillage, collect, absorb, and dispose of in accordance with current, applicable local, state, and federal regulations.</p>				

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Sikagard® FlexCoat - Cementitious Protective Coating

Two-component, polymer-modified, waterproof, cement-based coating system

Description	Sikagard® FlexCoat is a polymerized cementitious protective coating. It consists of a unique rubber-like polymer liquid (Part A) mixed at the time of application with a cement aggregate blend (Part B).
Where to Use	<ul style="list-style-type: none"> ■ Balcony deck surfacing. ■ Concrete exterior restoration. ■ Sidewalk resurfacing. ■ Wall refinishing and installation coating. ■ Stadium renovation. ■ Swimming pool walkways.
Advantages	<p>It can be applied over almost any clean, sound surface e.g. concrete, block, masonry, etc. for a number of different floor, wall and roof uses. Important characteristics of Sikagard® FlexCoat are its extraordinary adhesion coupled with its ability to withstand prolonged pedestrian and light vehicular traffic. In these respects, the material is far superior to conventional cementitious coatings. Sikagard® FlexCoat provides a waterproof coating which substantially reduces or prevents water penetration, freeze-thaw scaling and concrete carbonation. It is a "breathable" coating which releases normal entrapped vapor without loosening or blistering. Sikagard® FlexCoat is available in natural cement color.</p> <p>Sikalastic® Traffic Systems can be top coated with Sikagard® Flexcoat cement based systems. Please refer to the spec component of the Sikalastic®/Sikagard® Flexcoat Hybrid System.</p>
Packaging	55 lb. bag. and 2.5 gallon liquid (packaged in 3.5 gallon pail) = 1 unit.
Coverage	Sikagard® FlexCoat is applied in two coats. Each coat should be applied at 250 ft. ² /unit. A total of 60 mils total thickness is required. On-site results for coverage will vary.

Typical Data (Material and curing conditions @ 75°F (24°C))

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	1 year in original, unopened packaging
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.
Adhesion (ASTM C-882), Type I	515 psi
Absorption	<2%
Weight gain by 4" coated concrete cube after 21 days water immersion	
Weathering (ASTM G23) Weatherometer)	No visible degradation
Method 1 procedure, 60 cycles	
Hydrocarbon Substances Resistance (ASTM D-1308, Spot Open Test)	
21 days repeated reapplication of gasoline, motor oil SAE-10, jet fuel	No softening or attack
Resistance to Wind-Driven Rain	
Fed Spec. TT-C-558 (8 hrs.) & TT-P-0035 (24 hrs.)	
At 5" water pressure and 60 gal./hr. water flow	No water or dampness noted on back of test panels
Compressive Strength (ASTM C-109)	2,440 psi
Tensile Strength (ASTM C-190)	430 psi
Elongation (ASTM D-412)	12%
Shore Hardness (ASTM D-2240)	Durometer "A" - 82
Impact Resistance (MIL-D-3134, Para. 4.7.3.)	No cracking or detachment (2 lb. steel ball dropped from 8 ft. height on to coated steel plate)
Water Vapor Permeability (E-96)	1.96 perms/inches
Flammable Properties (ASTM E-84 Steiner Tunnel Test)	Flame Spread - 4 Smoke Density - 0
Fire Resistance (UL790)	Complies as Class A



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How to Use

Surface Preparation	Prepare surfaces by removal of dirt, foreign matter plus patching in accordance with manufacturer's recommendations. An open textured surface ICRI CSP.3 is recommended. Deeper areas shall be patched with appropriate patch material like SikaQuick® or SikaRepair® products. The material is applied in multiple coats by brush, roller, trowel or spray to a typical thickness of 60 mils.
Mixing	Place the liquid component in appropriate mixing container. It is always recommended to start mixing with approximately 80% of the liquid. Add the powder while continuing to mix. Mix to a uniform consistency, maximum 3 minutes. Mechanically mix with a low-speed drill (400-600 rpm) and paddle.
Application	Pre-wet surface to SSD (Saturate Surface Dry). Insure good intimate contact with the substrate is achieved. Sikagard® FlexCoat can be applied with brush, roller, trowel or spray application. Apply first coat of Sikagard® FlexCoat. Apply following coats (one or two depending on service conditions/requirements) by brush, trowel roller or spray. Finish to specified texture. Color Finish (optional) – apply Sikagard® FlexCoat ATC acrylic top coat for color finish, when specified, in two coats by roller, brush or spray. Caution: Do not install Sikagard® FlexCoat in cold weather (i.e. below 50°F/10°C) or when rainfall can be expected prior to material setting.
Tooling & Finishing	Curing Protect newly applied Sikagard® FlexCoat from direct sunlight, wind, rain and freezing.
Limitations	<ul style="list-style-type: none"> ■ Apply product in temperatures > 50°F (7°C) and rising. ■ Minor shade variation may occur with natural cement color material. ■ Not suitable for use in areas where acids or other aggressive chemicals are spilled. ■ Top coats strongly recommended for color uniformity. ■ Will reflect dynamic concrete cracks. ■ Static and dynamic cracks can be detailed in accordance with accepted industry practices of using embedding mesh or other methods to reduce the reflecting of cracks. ■ Sikagard® FlexCoat is a dense, cement-based waterproofing material that is vapor permeable. This product will not create a vapor barrier. ■ Efflorescence in the existing substrate can result in the failure of the bond or discoloration of the surface if there are areas of concrete that are not protected from water ingress. ■ Sikagard® FlexCoat has been tested with Sikagard® FlexcoatATC. Use of any other top coat needs to be tested for compatibility and performance. ■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® 32 Hi-Mod.

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SikaTop® 123 PLUS

Two-component, polymer-modified, cementitious, non-sag mortar plus Sika FerroGard® 901 penetrating corrosion inhibitor

Description	SikaTop® 123 PLUS is a two-component, polymer-modified, Portland cement-based, fast-setting, non-sag mortar. It is a high performance repair mortar for vertical and overhead surfaces and offers the additional benefit of Sika FerroGard® 901, a penetrating corrosion inhibitor included in its formulation.
Where to Use	<ul style="list-style-type: none"> ■ On grade, above and below grade on concrete and mortar. ■ On vertical and overhead surfaces. ■ As a structural repair material for parking structures, industrial plants, walkways, bridges, tunnels, dams and ramps. ■ Approved for repairs over cathodic protection systems
Advantages	<ul style="list-style-type: none"> ■ Extremely low shrinkage proven by four industry standard test methods. ■ High compressive and flexural strengths. ■ Increased freeze/thaw durability and resistance to deicing salts. ■ Compatible with coefficient of thermal expansion of concrete - Passes ASTM C 884. ■ Increased density - improved carbon dioxide resistance (carbonation) without adversely affecting water vapor transmission (not a vapor barrier). ■ Enhanced with Sika FerroGard® 901, a penetrating corrosion inhibitor - reduces corrosion even in the adjacent concrete. ■ USDA certifiable for incidental food contact ■ ANSI/NSF Standard 61 potable water approved complaint.
Coverage	0.39 cu. ft./ unit.
Packaging	Component 'A' - 1-gal. plastic jug; 4/carton. Component 'B' - 44-lb. multi-wall bag.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	One year in original, unopened packaging.
Storage Conditions	Store dry at 40°-95°F. Condition material to 65°-75°F before using. Protect Component 'A' from freezing. If frozen, discard.
Color	Concrete gray when mixed.
Mixing Ratio	Plant-proportioned kit, mix entire unit.
Application Time	Approximately 15 minutes.
Finishing Time	20-60 minutes

Note: All times start after adding Component 'B' to Component 'A' and are highly affected by temperature, relative humidity, substrate temperature, wind, sun and other job site conditions.

Density (wet mix)	ASTM C 138		132 lbs./ft³ (2.2 kg./l)
Flexural Strength	ASTM C 293	28 days	1,500 psi
Split Tensile	ASTM C 496	28 days	900 psi
Bond Strength	ASTM C 882 (modified)	28 days	2,000 psi
Compressive Strength	ASTM C 109	1 day	3,000 psi
		7 days	4,000 psi
		28 days	6,000 psi

Shrinkage **ASTM C 157**
(mod. ICRI 320.3R)

Specimen Size 1x1x11-1/4"		28 days	0.05%
Specimen Size 3x3x11-1/4"		28 days	0.038%
Ring Test (days)	ASTM C 1581	>70 days	
Ring Test - Average Max Strain	ASTM C 1581	-36 µstrain	
Ring Test - Average Stress Strain	ASTM C 1581	4.92 psi/day	
Ring Test - Potential for Cracking	ASTM C 1581	Low	
Baenzinger Block		90 days	No cracking
Freeze/Thaw Durability (300 cycles)	ASTM C 666		98%
Cl Permeability (cou)	ASTM C 1202		<500 Coulombs.
Direct Bond Strength	ASTM C 1583	28 days	500 psi (substrate failure)
Modulus of Elasticity	ASTM C 631		2.94 x 10⁶ psi
Initial Set Time (min)	ASTM C 266		20-40
Final Set Time (min)	ASTM C 266		<75



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How to Use

Substrates	Concrete, mortar, and masonry products.
Surface Preparation	<p>Remove all deteriorated concrete, dirt, oil, grease and all bond inhibiting materials from surface. Be sure repair area is not less than 1/8 inch in depth. Preparation work should be done by high pressure water blast, scabber, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of $\pm 1/16$ inch (CSP-5). Saturate surface with clean water. Substrate should be saturated surface dry (SSD) with no standing water during application.</p> <p>Reinforcing Steel: Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water after mechanical cleaning. For priming of reinforcing steel use Sika® Armatec® 110 EpoCem (consult Product Data Sheet).</p> <p>Priming Concrete Substrate: Prime the prepared substrate with a brush or sprayed applied coat of Sika® Armatec® 110 EpoCem (consult Product Data Sheet). Alternately, a scrub coat of SikaTop® 123 PLUS can be applied prior to placement of the mortar. The repair mortar has to be applied into the wet scrub coat before it dries.</p>
Mixing	Pour Component 'A' into mixing container. Add Component 'B' while mixing continuously. Mix mechanically with a low-speed drill (400 - 600 rpm) and mixing paddle or mortar mixer. Mix to a uniform consistency, maximum 3 minutes. Manual mixing can be tolerated only for less than a full unit. Thorough mixing and proper proportioning of the two components is necessary.
Application	SikaTop® 123 PLUS must be scrubbed into the substrate, filling all pores and voids. Force material against edge of repair, working toward center. After filling repair, consolidate, then screed. Material may be applied in multiple lifts. The thickness of each lift, not to be less than 1/8 inch minimum or more than 1.5 inches maximum. Where multiple lifts are required score top surface of each lift to produce a roughened surface for next lift. Allow preceding lift to reach initial set, 30 minutes minimum, before applying fresh material. Saturate surface of the lift with clean water. Scrub fresh mortar into preceding lift. Allow mortar or concrete to set to desired stiffness, then finish with wood or sponge float for a smooth surface.
Tooling & Finishing	As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based*, compatible curing compound (ASTM C 309 complaint). Curing compounds adversely affect the adhesion of following lifts of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. If necessary protect newly applied material from direct sunlight, wind, rain and frost. *Pretesting of curing compound is recommended.
Limitations	<ul style="list-style-type: none"> ■ Application thickness: Minimum 1/8 inch (3 mm). Maximum in one lift - 1.5 in. (38 mm). ■ Minimum ambient and surface temperatures 45°F (7°C) and rising at time of application. ■ Do not use solvent-based curing compound. ■ Size, shape and depth of repair must be carefully considered and consistent with practices recommended by ACI or ICRI. For additional information, contact Technical Service. ■ For additional information on substrate preparation, refer to ICRI Guideline No. 310.2R re: Polymer Overlays and Concrete Repair. ■ If aggressive means of substrate preparation is employed, substrate strength should be tested in accordance with ACI 503 Appendix A prior to the repair application. ■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® 32, Hi-Mod.

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Sikadur® 21, Lo-Mod LV

Low-modulus, low-viscosity, epoxy resin binder

Description	Sikadur® 21, Lo-Mod LV, is a 2-component, 100% solids, moisture-tolerant, epoxy resin binder. It conforms to the current ASTM C-881 Type II, Grade 1, Class B & C and AASHTO M-235 specifications.
Where to Use	Use as a binder for epoxy mortar for patching and overlays.
Advantages	<ul style="list-style-type: none"> ■ Tolerant to moisture both before and after cure. ■ Convenient easy mix ratio A:B = 1:1 by volume. ■ Excellent strength development. ■ Low viscosity gives you easy handling, high-yield epoxy mortar. ■ Material is USDA-certifiable for incidental food contact.
Coverage	<p>Prime Coat - approximately 200-250 ft²/gal.</p> <p>Mortar Binder - 1 gal. of mixed Sikadur® 21, Lo-Mod LV with the addition of 6 parts by loose volume of an oven-dried sand, yields approximately 924 in³.</p>
Packaging	4 gallon units. Note: Part A of the Sikadur 22 Lo-Mod, Sikadur 22 Lo-Mod FS and Sikadur 21 Lo-Mod LV is a universal component of these three products.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	2 years in original, unopened containers.			
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-85°F (18°-29°C) before using.			
Color	Clear, amber.			
Mixing Ratio	Component 'A':Component 'B' = 1:1 by volume.			
Viscosity	Approximately 1,000 cps.			
Pot Life	Approximately 25 minutes. (200 gram mass)			
Tack-Free Time	Approximately 3 hours; @ 90°F (32°C) Approximately 2 hours			
Traffic Time	4-5 hours.			
Tensile Properties (ASTM D-638)		MORTAR 1:6	NEAT	
14 day Tensile Strength		1,300 psi (8.9 MPa)	5,800 psi (40.0 MPa)	
Elongation at Break		0.2 %	5.5 %	
Modulus of Elasticity		6.6 x 10 ⁵ psi (4,551 MPa)	1.43 x 10 ⁶ psi (986 MPa)	
Flexural Properties (ASTM D-790)		MORTAR 1:6	NEAT	
14 day Flexural Strength (Modulus of Rupture)		2,300 psi (15.8 MPa)	9,600 psi (66.2 MPa)	
Tangent Modulus of Elasticity in Bending		1.2 x 10 ⁶ psi (8,274 MPa)	2.98 x 10 ⁶ psi (2,055 MPa)	
Shear Strength (ASTM D-732)		MORTAR 1:6	NEAT	
14 day Shear Strength		2,000 psi (13.7 MPa)	5,670 psi (39 MPa)	
Water Absorption (ASTM D-570)			NEAT	
7 day (24 hr immersion)			0.26%	
Bond Strength (ASTM C-882): Hardened concrete to hardened concrete				
2 day (dry cure)	Bond Strength	1,100 psi (7.5 MPa)		
14 day (moist cure)	Bond Strength	1,600 psi (11 MPa)		
Abrasion (Taber Abrader)			MORTAR 1:6	
14 day Weight loss, 1,000 cycles (H-22 wheel; 1,000 gm. weight)			4.1 gm	
Compressive Properties (ASTM C-579) Compressive Strength, psi (MPa)		Mortar 1:6 (ASTM D-695)		
	40°F (4°C)	73°F (23°C)	90°F (32°C)	73°F (23°C) NEAT
4 hour	-	-	500 (3.4)	-
8 hour	-	400 (2.7)	2,200 (15.1)	-
16 hour	20 (0.13)	2,100 (14.4)	4,600 (31.7)	116 (0.80)
1 day	40 (0.27)	2,600 (17.9)	4,700 (32.4)	1,900 (13.1)
3 day	1,400 (9.6)	4,900 (33.7)	5,500 (37.9)	6,700 (46.2)
7 day	3,500 (24.1)	5,400 (37.2)	6,200 (42.7)	9,000 (62.1)
14 day	4,500 (31.0)	6,000 (41.3)	6,200 (42.7)	9,100 (62.7)
28 day	4,600 (31.7)	6,100 (42.0)	6,200 (42.7)	9,200 (63.4)

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Compressive Modulus

28 day

MORTAR

7.6 x 10⁵ psi (5,240 MPa)

NEAT

2.58 x 10⁵ psi (1,779 MPa)

* Material cured and tested at the temperatures indicated.

How to Use

Surface Preparation	<p>Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants.</p> <p>Preparation Work:</p> <p>Concrete - Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface by blast cleaning or equivalent mechanical means.</p> <p>Steel - Should be cleaned and prepared thoroughly by blast cleaning to white metal finish.</p>
Mixing	<p>Proportion equal parts by volume of Component 'A' and 'B' into clean pail. Mix thoroughly for 3 min. with Sika paddle on low-speed (400-600 rpm) drill until uniformly blended. Mix only that quantity that can be used within pot life.</p> <p>To prepare epoxy mortar - Slowly add 6 parts by loose volume of oven-dried sand aggregate to 1 part of mixed Sikadur® 21, Lo-Mod LV. Mix until uniform in consistency.</p>
Application	<p>Epoxy Mortar - Prime prepared surface with mixed Sikadur® 21, Lo-Mod LV. Apply epoxy mortar by trowel or vibrating screed while primer is still tacky. Finish with finishing trowel.</p>
Limitations	<ul style="list-style-type: none"> ■ Minimum substrate and ambient temperature 40°F (4°C). ■ Porous substrates must be tested for moisture-vapor transmission prior to application. (Ref. ASTM D-4263). ■ Minimum age of concrete before application is 21-28 days depending upon curing and drying conditions. ■ Do not apply to exterior slab on grade. ■ Maximum application thickness on exterior substrates exposed to thermal change is 1/2 in (13 mm). ■ Do not dilute. Addition of solvents will prevent proper cure. ■ Use oven-dried aggregates only. ■ Material is a vapor barrier after cure. ■ Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

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Sikaflex®-2c NS TG

Two-component, traffic-grade,
polyurethane elastomeric sealant

Description	Sikaflex-2c NS TG is a premium-grade, polyurethane-based elastomeric sealant. It is principally a chemical cure in a non-sag consistency. Available in 35 standard colors (>320 special colors) with a convenient Color-pak. Also available as a pre-pigmented product in Limestone Gray. Meets ASTM C 920, Type M, Grade NS, use T, NT, O, M, G, A and Federal Specification TT-S-00227E. Product developed by addition of Sikaflex 2c NS TG Component to the standard Sikaflex 2c NS EZ Mix joint sealant.
Where to Use	<ul style="list-style-type: none"> ■ Applications to include: parking garages, walkways, plazas, platforms, etc., with exposure to foot or pneumatic-tire traffic. ■ Intended for horizontal joints with a minimum depth of ¼ inch. ■ Placeable at temperatures as low as 40°F. ■ Adheres to most substrates commonly found in construction. ■ Acceptable for sealing joints in institutions, correctional facilities, etc., as a tamper resistant sealant.
Advantages	<ul style="list-style-type: none"> ■ Capable of ±25% joint movement. ■ Chemical cure allows the sealant to be placed in joints exceeding ½ inch in depth. ■ Tough, durable, flexible consistency. ■ Exceptional cut and tear resistance. ■ Exceptional adhesion to most substrates without priming. ■ Color uniformity assured via Color-pak system or pre-pigmented Limestone Gray. ■ Fuel resistant. ■ No Color-pak needed in pre-pigmented Limestone Gray.
Coverage	1 gal. yields 231 cu. in. or 154 lin. ft. of a 1/2 in. X 1/4 in. joint.
Packaging	Sikaflex 2c NS - 1.5 gal. unit plus, Sikaflex 2c NS TG Component - 1/2 pint can (6- 1/2 pint cans/case). Contents 5.25- fl. oz./can. Color-pak is also purchased separately. Limestone Gray color available pre-pigmented.

Typical Data (Material and curing conditions 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	One year in original, unopened containers.	
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.	
Colors	A wide range of architectural colors are available. Special colors available on request.	
Application Temperature	40° to 100°F, ambient and substrate temperatures. Sealant should be installed when joint is at mid-range of its anticipated movement.	
Service Range	-40° to 170°F (-40° - 75°C)	
Shore A Hardness (ASTM D-2240)	21 day	45 ± 5
Tensile Properties (ASTM D-412)	21 day	
Tensile Stress		220 psi
Elongation at Break		300%
Modulus of Elasticity	25%	75 psi
	50%	110 psi
	100%	140 psi
Adhesion in Peel (TT-S-00230C, ASTM C-794)		
Substrate: Concrete	Peel Strength: 25 lb.	Adhesion Loss: 0%
Weathering Resistance	Excellent	
Chemical Resistance	Good resistance to water, diluted acids, and diluted alkalines. Consult Technical Service for specific data.	
Joint Movement Capability	± 25%	



How to Use

Surface Preparation	All joint-wall surfaces must be clean, sound, and frost-free. Joint walls must be free of oils, grease, curing compound residues, and any other foreign matter that might prevent bond. Ideally, this should be accomplished by mechanical means. A roughened surface will also enhance bond. Bond breaker tape or backer rod must be used in bottom of joint to prevent bond.
Priming	Priming is typically not necessary. Most substrates only require priming if sealant will be subjected to water immersion after cure. Testing should be done, however, on questionable substrates, to determine if priming is needed. Consult Technical Service or Sikaflex Primer Technical Data Sheet for additional information on priming.
Mixing	Pour entire contents of Component 'B' and (1) 1/2 pint unit of Sikaflex-2c NS TG Component into pail of Component 'A'. For tint base: add entire contents of Color-pak into pail and mix with a low-speed drill (400-600 rpm) and Sikaflex paddle. *Mix for 3-5 minutes to achieve a uniform color and consistency. Scrape down sides of pail periodically. Avoid entrapment of air during mixing. *For pre-pigmented limestone base: just mix with low speed drill and Sikaflex paddle without Color-pak.
Application	Recommended application temperatures 40°-100°F. Pre-conditioning units to approximately 70°F is necessary when working at extremes. Move pre-conditioned units to work areas just prior to application. Apply sealant only to clean, sound, dry, and frost-free substrates. Sikaflex-2c NS TG should be applied into joints when joint slot is at mid-point of its designed expansion and contraction. To place NS TG, load directly into bulk gun or use a follower plate loading system. Place nozzle of gun into bottom of joint and fill entire joint. Keeping the nozzle deep in the sealant, continue with a steady flow of sealant preceding the nozzle to avoid air entrapment. Avoid overlapping of sealant to eliminate entrapment of air. Tool as required. Proper design is 2:1 width to depth ratio.
Limitations	<ul style="list-style-type: none"> ■ The ultimate performance of Sikaflex 2c NS TG depends on good joint design and proper application. ■ Minimum depth in working joint is 1/4 in; maximum depth for working joint is 1/2 in. ■ Maximum expansion and contraction should not exceed 25% of average joint width. ■ Do not cure in the presence of curing silicones. ■ Avoid contact with alcohol and other solvent cleaners during cure. ■ Allow 3-day cure before subjecting sealant to total water immersion and prior to painting. ■ Do not apply when moisture vapor transmission exists since this can cause bubbling within the sealant. ■ Avoid over-mixing sealant. ■ White color tends to yellow over time when exposed to ultraviolet rays. ■ When over-coating: an on-site test is recommended to determine actual compatibility. ■ The depth of sealant in horizontal joints subject to traffic is 1/2 in. ■ Avoid exposure to high levels of chlorine. (Maximum continuous level is 5 ppm). ■ Do not tool with detergent or soap solutions. ■ Protect Sikaflex-2c NS TG Component from moisture. Use entire contents of container. ■ Maximum addition rate of TG Component is (1) 1/2 pint container/unit of Sikaflex-2c NS. ■ Do not use in contact with bituminous/asphaltic materials.
Caution	<p>Component 'A'; Irritant - Avoid contact. Product is a skin, respiratory and eye irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded. Use with adequate ventilation.</p> <p>Component 'B'; Combustible; Sensitizer; Irritant - Contains Xylene. Keep away from heat, sparks and open flame. Use with adequate ventilation. Product is a respiratory and skin sensitizer. Avoid contact. Product is an eye, skin, and respiratory irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded.</p> <p>Sikaflex 2c NS TG Component; Irritant; Sensitizer; Combustible - Contains Xylene, Isocyanate. Keep away from heat, sparks, and open flame. Use with adequate ventilation. Avoid skin contact. Product is an eye, skin, and respiratory irritant. Product is a respiratory and skin sensitizer. Use of goggles and chemical resistant gloves recommended. Use of an NIOSH approved respirator required if PELs are exceeded.</p>
First Aid	In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes; contact physician. For respiratory problems, remove to fresh air. In case of ingestion, dilute with water and milk; contact a physician. Wash clothing before re-use. Discard contaminated shoes.
Clean Up	Uncured material can be removed with approved solvent. Cured material can only be removed mechanically. In case of spillage, wear suitable protective equipment, collect with absorbent materials and dispose of in accordance with current, applicable local, state, and federal regulations.

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